

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

Claims 1 – 24 previously canceled.

Claim 25 (previously presented) A method of coating a medical device, comprising:

thermally spray-forming material onto the medical device to form the coating where the type of thermal spray processing is selected from the group consisting of cold spray, combustion, hvof, arc, and plasma and where the material forming the coating is selected from the group consisting of metals, metal alloys, polymers, ceramics, and cermets.

Claim 26 (previously presented) The method of claim 25, wherein the thickness of the coating is varied on the medical device.

Claim 27 (previously presented) The method of claim 25, wherein the thickness of the coating is varied along a length of the medical device.

Claim 28 (previously presented) The method of claim 25, wherein metallic alloys are sprayed onto the medical device to form the coating.

Claim 29 (previously presented) The method of claim 25, wherein ceramic materials are sprayed onto the medical device to form the coating.

Claim 30 (previously presented) The method of claim 25, wherein composites are coated onto the medical device.

Claim 31 (previously presented) The method of claim 25, wherein polymers are coated onto the medical device.

Claim 32 (previously presented) The method of claim 25, wherein a metallic coating is heated and grains are grown after the coating is sprayed onto the medical device.

Claim 33 (previously presented) The method of claim 25, wherein the medical device is swaged after coating.

Claim 34 (previously presented) The method of claim 25, wherein the medical device is drawn after coating.

Claim 35 (previously presented) The method of claim 34, wherein the medical device is annealed after being coated.

Claim 36 (previously presented) The method of claim 25, wherein the medical device is heated for post-processing after being coated.

Claim 37 (previously presented) The method of claim 25, wherein after coating, the medical device is cross-link processed.

Claim 38 (previously presented) The method of claim 25, wherein after coating, the medical device is post processed in a traveling ring furnace where the material is melted and re-solidified as the ring travels the length of the medical device.

Claim 39 (previously presented) The method of claim 25, wherein after coating the medical device is processed under high mechanical pressure in a vacuum to sinter grains of the medical device together.

Claim 40 (previously presented) The method of claim 25, wherein after coating an outer diameter of the medical device is post processed through centerless grinding.

Claim 41 (previously presented) The method of claim 25, wherein after coating an outer diameter of the medical device is post processed by drawing to reduce the coating thickness.

Claim 42 (previously presented) The method of claim 25, wherein after coating an inner diameter of the medical device is post processed by boring for improving both dimension and surface roughness.

Claim 43 (previously presented) A method of coating an intravascular stent through cold spray thermal processing, comprising:

introducing particles of a powder of at least one first material selected from the group consisting of metals, metal alloys, and polymers with a particle size from about 1 to 64 microns, into a gas selected from the group consisting of Nitrogen (N₂), Oxygen (O₂), Air, Helium (He), Argon (Ar), Xenon (Xe), or Carbon Dioxide (CO₂);

introducing the gas and particles into a supersonic nozzle with an inlet temperature between 380 to 420° Celsius, at an inlet velocity from about 300 to about 1,200 m/sec, and an inlet pressure of 1.5 to 2.5 Mpa to form a high pressure stream;

directing the high pressure stream at a stent placed on a mandrel 8 to 10 mm away from the nozzle, the stent formed from a second material selected from the group consisting of a metal, an alloy and a polymer, and coating the stent with the particles to form a coated stent; and

removing the coated stent from the mandrel.

Claim 44 (previously presented) A method of coating a medical device, comprising:

- providing a medical device;
- providing a coating material containing a metal alloy; and
- applying the coating material to the medical device, wherein a thermal spray process is used.

Claim 45 (previously presented) The method of claim 44, wherein providing the medical device includes forming the medical device from a metal alloy.

Claim 46 (previously presented) The method of claim 45, wherein providing the medical device includes forming the medical device as a near-net shaped device.

Claim 47 (previously presented) The method of claim 46, wherein providing the medical device includes forming the medical device into a stent.

Claim 48 (previously presented) The method of claim 47, wherein providing the medical device includes forming the stent from 316L stainless steel.

Claim 49 (previously presented) The method of claim 48, wherein providing a coating material includes using 316L stainless steel.

Claim 50 (previously presented) The method of claim 49, wherein applying the coating material forms a stainless steel coating having an average grain size of less than thirty-two microns.

Claim 51 (previously presented) The method of claim 49, wherein applying the coating material forms a stainless steel coating having an average grain size of less than twenty-two microns.

Claim 52 (previously presented) The method of claim 49, wherein applying the coating material results in a coating having porosity.

Claim 53 (previously presented) The method of claim 49, wherein providing a coating material includes using 316L stainless steel in the form of a powder.

Claim 54 (previously presented) The method of claim 53, wherein applying the coating material includes using a cold spray process.

Claim 55 (previously presented) The method of claim 53, wherein applying the coating material includes using a combustion thermal spray process.

Claim 56 (previously presented) The method of claim 53, wherein applying the coating material includes using a high velocity oxygen fuel thermal spray process.

Claim 57 (previously presented) The method of claim 53, wherein applying the coating material includes using a plasma spray process.

Claim 58 (previously presented) A method of coating a medical device, comprising:

providing a medical device;

providing a coating material containing a metal alloy; and

using a cold spray process to apply a variable thickness coating of the metal alloy onto the medical device.

Claim 59 (previously presented) The method of claim 58, further including varying the thickness of the metal alloy coating along a length of the medical device.

Claim 60 (previously presented) The method of claim 58, wherein providing the medical device includes forming the medical device into a stent.

Claim 61 (previously presented) A method of coating a medical device, comprising:

providing a medical device;

providing a coating material containing a metal alloy; and

using a cold spray process to apply a coating of the metal alloy onto the medical device such that the coating has an average grain size of less than thirty-two microns.

Claim 62 (previously presented) The method of claim 61, wherein using a cold spray process forms a metal alloy coating having an average grain size of less than twenty-two microns.

Claim 63 (previously presented) The method of claim 61, wherein providing the medical device includes forming the medical device into a stent.

Claim 64 (new) A method of coating a medical device, comprising:
forming a metal alloy coating onto a medical device using a thermal spray process selected from the group consisting of cold spray, combustion, hvof, arc, and plasma; and
processing the medical device in a traveling ring furnace where the metal alloy coating is melted and re-solidified as the ring travels the length of the medical device.

Claim 65 (new) A method of coating a medical device, comprising:
forming a metal alloy coating onto a medical device using a thermal spray process selected from the group consisting of cold spray, combustion, hvof, arc, and plasma; and
centerless grinding an outer diameter of the metal alloy coated medical device.

Claim 66 (new) A method of coating a medical device, comprising:
forming a metal alloy coating onto a medical device using a thermal spray process
selected from the group consisting of cold spray, combustion, hvof, arc, and plasma; and
drawing the medical device so as to reduce a thickness of the metal alloy coating.

Claim 67 (new) A method of coating a medical device, comprising:
coating a metal alloy onto an inner diameter of a medical device using a thermal
spray process selected from the group consisting of cold spray, combustion, hvof, arc,
and plasma; and
boring the inner diameter of the metal alloy coated medical device so as to
improve both dimension and surface roughness.